IN THE CLAIMS

1. **(currently amended)** In an apparatus for measuring a magnetic field comprising a superconducting quantum interference device (SQUID) inductively coupled to a gradiometer, a device for shielding the SQUID from radio frequency interference (RFI) picked up through the gradiometer, the device including:

a filter circuit having a resistor-capacitor (RC) combination interconnected to first and second terminals so that the filter circuit is electrically parallel to both an input coil of the SQUID and the gradiometer, wherein the filter circuit is effective to shunt both magnetically-induced and electrically-induced components of RFI generated in the gradiometer away from the input coil, and wherein the filter circuit includes one or more capacitors connected to a system ground.

2. **(currently amended)** The apparatus of claim 1, wherein the filter circuit includes:

a first shunt resistor R_S connected between the first terminal and a third terminal;

a second shunt resistor R_S connected between the second terminal and the third terminal; and

a grounding capacitor C_g connected between the third terminal and ~~a~~ the system ground.

3. **(currently amended)** The apparatus of claim 1, wherein the filter circuit includes:

a first shunt resistor R_S connected between the first terminal and the second terminal;

a first series grounding circuit including a first grounding resister R_g and a first grounding capacitor C_g connected between the first terminal and ~~a~~ the system ground; and

a second series grounding circuit including a second grounding resistor R_g and a second grounding capacitor C_g connected between the second terminal and ~~a~~ the system ground.

4. **(currently amended)** The apparatus of claim 1, wherein the filter circuit includes:

a first series shunting circuit including a first shunting resistor R_S and a first shunting capacitor C_S connected between the first terminal and a third terminal;

a second series shunting circuit including a second shunting resistor R_S and a second shunting capacitor C_S connected between the third terminal and the second terminal; and

a grounding capacitor C_g connected between the third terminal and ~~a~~ the system ground.

5. **(currently amended)** The apparatus of claim 1, wherein the filter circuit includes:

a first series shunting circuit including a first shunting resistor R_S and a first shunting capacitor C_S connected between the first terminal and the second terminal;

a first series grounding circuit including a first grounding resistor R_g and a first grounding capacitor C_g connected between the first terminal and ~~a~~ the system ground; and

a second series grounding circuit including a second grounding resistor R_g and a second grounding capacitor C_g connected between the second terminal and ~~a~~ the system ground.

6. **(currently amended)** The apparatus of claim 1, wherein the filter circuit includes:

a first shunt resistor R_S connected between the first terminal and a third terminal;

a second shunt resistor R_s connected between the second terminal and the third terminal;

a third shunt resistor R connected between the first terminal and the second terminal; and

a grounding capacitor C_g connected between the third terminal and ~~a~~ the system ground.

7. (withdrawn from consideration) In an apparatus for measuring a magnetic field comprising a superconducting quantum interference device (SQUID) electrically coupled to a gradiometer, wherein the SQUID comprises an insulator separating a SQUID washer from an input coil at a predetermined distance t, the input coil being interconnected to the gradiometer, a method for reducing coupling of radio frequency interference (RFI) into the SQUID through the gradiometer by increasing the capacitive impedance Z_{Ci} between the input coil and the SQUID washer, the method comprising the steps of:

reducing a conductor width in the input coil in order to reduce a capacitance C_i of the coil; and

providing the coil with a number of turns N such that a stripline inductance of the input coil L_{strip} is negligible as compared to N^2*L_{SQ}, wherein L_{SQ} is an inductance of the SQUID washer, such that an input coil inductance Li is approximately equal to N^2*L_{SQ};

such that C_i is decreased, and Z_{Ci} is increased, and the sensitivity S of the apparatus is unchanged, wherein S is inversely proportional to the sum of a gradiometer inductance L_g and input coil inductance L_i.

8. (withdrawn from consideration) The method of claim 7, wherein N exceeds 20.

9. (withdrawn from consideration) The method of claim 9, wherein N exceeds 100.

10. (original) The apparatus of claim 1, further including a shield for housing the SQUID and the RC circuit so that the RC circuit is electromagnetically isolated from the SQUID.

11. (original) The apparatus of claim 10, wherein the shield comprises two electromagnetically isolated chambers each for housing one of the SQUID and the RC circuit, wherein the two electromagnetically isolated chambers are interconnected by a third chamber having a diameter d.

12. (canceled)

13. (original) The apparatus of claim 11, wherein the one electromagnetically isolated chamber for housing the RC circuit includes a grounding terminal.